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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,512	03/19/2004	Olaf Hohenberg	512425-2103	7638

7590 07/06/2005

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EXAMINER	
MOORE, MARGARET G	

ART UNIT	PAPER NUMBER
1712	

DATE MAILED: 07/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/804,512	HOHENBERG ET AL.	
	Examiner	Art Unit	
	Margaret G. Moore	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1 to 27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1 to 27 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1 to 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is confusing and seemingly improper to refer to the product as being alkoxy substituted when many of the reactants will not result in an alkoxy group. Clarification of the end product is requested.

For claims 6 and 7, these claims are confusing since they depend upon a claim that does not include B containing catalysts.

In claim 7, it is unclear if the catalyst species is a combination of triethylborane and boron trichloride or if these are separate members of the Markush group. Also the presence of the (9Cl), (7Cl) and (8Cl) after many of the compounds is confusing. Finally, clarification of the compound tris)perfluorotriphenylborane) is requested. The Examiner cannot readily determine this structure.

In claim 16, "polyoryamosiloxane" is a misspelling.

For claim 17, it is unclear what is intended by this limitation. For instance, "comb like" is usually used to describe grafted copolymers. It is unclear how this defines the polyorganosiloxane of (I). Also, it is unclear what is intended by "disubstituted" since the substituent groups are not defined. Finally, the intent of "mixed" is unclear.

For claims 18 and 22 it is inappropriate to state that "y" can be 0 because this will result in a siloxane having no SiH groups.

For claim 25, the term "obtainable" renders this claim indefinite since it is not clear if this claim embraces product by process requirements per se.

For claim 27, "olyorganosiloxane" is a misspelling.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

> only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 to 5, 10, 13, 15 to 19 and 24 to 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Boudjouk et al.

Boudjouk et al. teach a method of making aminofunctional alkoxy polysiloxanes which requires the reaction between an aminoalcohol and an SiH siloxane. See the reactants on column 3, line 55, to column 6, as they meet the reactants in the instant claims. This reaction is carried out in the presence of a catalyst, including YCl_3. See Table 4, line 46. This meets the catalyst in claim 1 as well as claims 4, 5 and 10. The siloxane on column 5 meets claims 2, 3, 18 and 19 and apparently claims 16 and 17. The amino alcohol on column 6 meets claim 13. Example 1 uses a molar ratio of SiH groups to alcohol of 1:.5, meeting claim 15. Column 4, line 55, teaches that the solvent is optional, meeting claim 24. Column 13, lines 30 and on, teaches that this siloxane can be used in a coating composition (i.e. a paint). Claims 25 to 27 are fully met by the siloxanes in Boudjouk et al.

5. Claims 14, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boudjouk et al.

With regard to claim 14, note column 4, line 54, which teaches that the siloxane and aminoalcohol can be introduced in relatively equimolar amounts. Adjusting the SiH to alcohol ratio will adjust the final degree of addition. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (i.e. does not require undue

experimentation). Note that "relatively equimolar amounts" indicates that approximately a 1:1 ratio of SiH to alcohol should be used, thereby rendering obvious the claimed range that is slightly below this.

With regard to claims 20 and 21 note that such a specific siloxane is not taught as a reactant by Boudjouk et al. However the siloxanes in Boudjouk et al. can generally be linear (column 3, line 56) and are open to any type of SiH containing siloxane. As the skilled artisan would recognize, SiH units on the terminal Si atoms will undergo dehydrogenative reaction in the same manner as SiH units on the backbone. As such, in view of the breadth of the teachings of Boudjouk et al., the skilled artisan would have had a reasonable expectation of success in selecting a siloxane having terminal SiH groups as a reactant, thereby rendering obvious the instant claim.

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boudjouk et al. as applied to claims 1 to 5 above, and further in view of Blackwell et al. or WO 01/74938 (as interpreted by the English language equivalent Deforth et al.).

Column 7, lines 28 to 31, in Boudjouk et al. teaches generally that any catalyst known be use useful for the dehydrogenative coupling of silanes may be used in the reaction therein.

Blackwell et al. teach the dehydrogenative coupling of silanes and alcohols. This is the same reaction mechanism found in the process of Boudjouk et al. That is, both Blackwell et al. and Boudjouk et al. teach the dehydrogenative reaction between an SiH group and an alcohol. Blackwell et al. teach on column 2 of page 4887 that triperfluoro-phenyl borate can be used as an alternative to transition metal catalysts, such as those taught by Boudjouk in dehydrogenative reactions.

Deforth et al. also teach a dehydrogenative condensation reaction. While this is between a silanol and an SiH compound, the reaction mechanism per se is the same, the only difference being SiOH rather than COH as the reactive group. Deforth et al. teach that the catalysts can be selected from those within instant claims 6 and 7. See for instance pages 3 and 4.

Thus the skilled artisan would have been motivated by the teachings of Blackwell et al. or Deforth et al. to use the catalysts therein in the reaction process of Boudjouk et al. Motivation to do so comes from the expectation of obtaining an equivalent product by using a comparable catalyst of the dehydrogenative condensation reaction type, particularly ones known to be useful in the cleavage of SiH bonds when reacted with an alcohol or silanol. It is prima facie obvious to substitute equivalents, motivated by the reasonable expectation that the respective species will behave in a comparable manner or give comparable results in comparable circumstances. The express suggestion to substitute one equivalent for another need not be present to render the substitution obvious.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable Boudjouk et al. as applied to claims 1 to 5 above, and further in view of Beattie et al.

Similar to the rationale noted supra, Boudjouk et al. fail to teach a catalyst within the breadth of claim 8. The process in this reference is open, however, to any operable dehydrogenative catalyst known in the art.

Beattie et al. teach the dehydrogenative reaction between alcohols and SiH compounds, the same reaction mechanism found in the process of Boudjouk et al. That is, both Blackwell et al. and Beattie et al. teach the dehydrogenative reaction between an SiH group and an alcohol. Line 55 on column 2, teaches Friedel-Crafts halides as operable dehydrogenative catalysts. $AlCl_3$ is a common Friedel-Crafts catalyst. [1] The skilled artisan would readily recognize that $AlCl_3$ can be used as a catalyst in the dehydrogenative reactions. Note that the reaction in Beattie et al. differs from that claimed only in that the siloxane therein has at least some branching.

From this, the skilled artisan would have been motivated to use the dehydrogenative catalysts in Beattie et al, including $AlCl_3$ in the dehydrogenative condensation reaction Boudjouk et al. with an expectation of obtaining a comparable reaction product with a reasonable expectation of success. As noted above, it is prima facie obvious to

[1] See Grant and Hackh's Chemical Dictionary, definition of Friedel-Crafts.

substitute equivalents, motivated by the reasonable expectation that the respective species will behave in a comparable manner or give comparable results in comparable circumstances.

8. Claims 9, 11 and 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art fails to teach or suggest such catalysts.

9. The remaining references are cited as being of general interest. Ichinobe et al., Wang et al., Steffen and Williams et al. teach dehydrogenative reactions between alcohols and SiH groups but fail to teach or suggest the catalysts required. Nishiwaki et al. teach dehydrative condensation between SiOH and an alcohol using catalysts within the breadth of those found in claim 1, but a dehydrative reaction is different from dehydrogenative (the former releases H_2O while the latter releases H_2) and there is nothing that would suggest using the catalysts in Nishiwaki et al. in a process as claimed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret G. Moore whose telephone number is 571-272-1090. The examiner can normally be reached on Monday to Wednesday and Friday, 10am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Margaret G. Moore
Primary Examiner
Art Unit 1712

mgm
6/9/05